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When Dingell's Staff Called, Cancer Institute Quaked

Managerial turmoil was known to reign in the closing months last spring of Samuel Broder's six years as Director of the National Cancer Institute, the biggest component of the National Institutes of Health. But the extent and fine details of the difficulties, and the intensity of discord in the upper ranks of the biomedical-research bureaucracy, are now evident in court documents obtained by SGR.

The documents, including sworn depositions taken in August and September, arise from law suits brought against officials at NIH and other federal agencies by a world-honored cancer researcher, Professor Bernard Fisher, of the University of Pittsburgh.

As controversy over the Fisher case ballooned, NCI Director Broder resigned in April, reportedly under pressure from NIH Director Harold Varmus, and joined a pharmaceutical firm in Florida. But the case lingers on, amid charges that NCI deliberately besmirched Fisher's reputation, putting unwarranted "misconduct" labels on his research papers in MEDLINE and other data bases, to appease Congress's thunderous skeptic of scientific purity, Rep. John Dingell.

From the start of his NCI directorship in 1989, following a career at the Institute, Broder was hounded by Dingell and his investigators on the trail of long-festering misconduct allegations against NCI's best-known researcher, Robert C. Gallo, accused of filching AIDS-research credit from the Pasteur Institute. The Fisher episode exploded while the Gallo case was on a high boil.

The fear of Dingell's rough tactics is encapsulated in a statement attributed in a deposition to Michael A. Friedman, Associate Director of NCI's Cancer Therapy Evaluation Program. When an NCI colleague was asked "Did Dr. Friedman ever discuss with you his meetings with the Dingell staff," she replied, "The only thing he [Friedman] ever said was that he'd rather pass a kidney stone."

In addition to that recollection, depositions in the Fisher case reveal that the collision of Dingell and NCI produced:

- A "certain dysfunctional quality" in NCI operations, according to Friedman. Asked whether Broder was "angry" and "screaming" at a meeting concerning Fisher, Susan M. Hubbard, Director of NCI's International Cancer Information Center, answered, "Yes," later noting that "Dr. Broder was not interested in what other people thought. He wanted it done the way he wanted it done."
- Blame-swapping and disavowals of responsibility for the MEDLINE and other "misconduct" labels on Fisher's papers among senior staff at NCI, the National Library of Medicine, and the Office of Research Integrity, with NCI Acting Deputy Director Edward Sondik telling a staffer by e-

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The New NASA: Q&A With Space Chief Daniel Goldin

In an Administration that claims it is reinventing government, NASA is easily the most changed, if not reinvented, agency in the federal research establishment. NASA Administrator Daniel Goldin, one of the very few Bush appointees retained by President Clinton, talked about the reshaping of the space agency with SGR Editor Greenberg on October 26. Following is the text, transcribed and edited by SGR.

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SGR. *With all the reinvention that's supposed to be going on here, you're still building the Space Station, though a lot of knowledgeable people are extremely dubious about its utility.*

Goldin. A lot of people are now saying it's a very good thing to do. The Space Station, three, four years ago, was

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In Brief

After nearly three years in office, President Clinton finally gave the Big Science Speech that the Washington science establishment craves from every Chief Executive. Clinton, speaking at a National Science and Technology Medals ceremony October 18, said the customary right things about S&T—reading from a text drafted by his Science and Technology shop. But the speech came too late in the legislative cycle to affect events on Capitol Hill, and with the budget end-game now raging there, press and TV coverage of the speech was virtually nil.

More money for research was the plea from several members of the President's Committee of Advisors for Science and Technology when they were briefed October 23 by Alice Rivlin, Director of the Office of Management and Budget. Noting the Congressional drive to reduce spending, Rivlin explained: "Realism compels me to say that increases are not the way to define success—it's cutting the losses." Asked why Congress doesn't show more appreciation for research, Rivlin replied: "We're faced with people who react negatively to anything government does."

But even so, there are new starts. NIH has just announced plans to fund eight research centers for studies of so-called alternative medicine, a line of research inflicted on Bethesda in 1992 by witch doctors on Capitol Hill. The centers, mainly at universities evenly distributed around the nation, will each receive a total of $850,000 over three years, according to an announcement from the NIH Office of Alternative Medicine.

Taking a new approach to fighting the scientific pork barrel, the House has voted to deny NSF funds for five years to any university that dips in for its own benefit.

. . . When 'the Poop Hit the Fan' at Cancer Institute

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mail: "ORI is talking as if we are to blame for the sci. mis. conduct statements. I am not going to accept such responsibility." However, Lyle Bivens, Director of ORI, countered in a memo to Sondik that it was at NCI's request that ORI asked the Library of Medicine to place the "misconduct" notations on some 100 papers by Fisher in data bases operated by the Library and NCI. Both organizations attempted to cleanse the records after Fisher protested that he had never been found guilty of misconduct, and a federal court in March upheld his position.

- Broder's depiction of himself as a political martyr, and his repeated threats to the jobs of subordinates who challenged his dictates. Broder "was not averse to telling people that they could resign if they didn't want to do what he asked," according to Susan Hubbard. Though Broder fired Fisher as chief of the NCI cancer-research program that Fisher had long headed, Broder expressed regret that he could fire Fisher only once, according to several NCI officials, including Bruce Chabner, former head of the Cancer Treatment Division.
- "Grovelling" by Broder at the first of two Dingell hearings, according to Leslie G. Ford, Chief of the NCI Community Oncology and Rehabilitation Branch. A second hearing, at which Broder reported the crackdown on Fisher, was described as a "lovefest."
- Badgering of biomedical-research officials by a Dingell staff investigator notorious for filthy language.

Fisher, now 77, is renowned for organizing and directing the massive NCI-financed National Surgical Adjuvant Breast and Bowel Project (NSABP), clinical trials, spread across the US and Canada, that established the life-saving value of lumpectomy and radiation for breast cancer and tamoxifen to reduce recurrence. Until last year, Broder and other NCI officials lavished superlatives on Fisher as a great medical benefactor. In June 1994, even as NCI was accusing Fisher of scientific misconduct, Broder told a meeting of NSABP physicians: "We hold Dr. Fisher, at least I hold him, in the part of my brain as one would hold for a father or a parent. He is a great man." At that point, though, and at Broder's behest, Fisher was being transformed from hero to outcast.

The events leading to the current litigation date back to 1990, when Roger Poisson, a Montreal-based investigator in the NSABP trials coordinated by Fisher, was found to have enrolled about 100 ineligible patients, and was deemed guilty of scientific misconduct. An initial review ordered by Fisher concluded that the flawed cases were too limited in number to affect the outcome of the trials. Fisher reported the episode to NCI, and agreed to prepare an analysis to support his conclusions. In 1993, the case was recorded in the *Federal Register* and the *NIH Guide to Grants and Contracts*.

But neither press nor politics noticed until a year later, when the *Chicago Tribune* reported Poisson's misconduct. With Dingell thus alerted, NCI suddenly accused Fisher of scientific misconduct and ousted him from the sprawling research project he had directed for 24 years. ORI notified Fisher that he was under investigation, but as far as can be determined, no investigation was ever conducted. Was the announcement an effort to appease Dingell? Some think so.

In March, the court sided with Fisher in his suit to have the misconduct flags removed from his papers. He was back again in court October 16 with another suit, this one seeking a summary judgment in behalf of his claim that federal officials violated the Federal Privacy Act and besmirched his reputation by flagging the papers. The flags, in data bases operated by the National Library of Medicine and NCI appended the notation "Scientific Misconduct—Data to Be Reanalyzed" to some 100 of Fisher's research reports on MEDLINE, CANCERLIT, PDQ, and other systems.

The flagging, referred to as "electronic graffiti" in Fisher's suit, has turned into a seemingly insoluble mess for the Library and NCI. In demanding removal of the notations, Fisher pointed out that some of the flagged papers contained no data from Poisson. The depositions brought out that the selections were hurriedly made last year in the shadow of forthcoming hearings by Chairman Dingell.

In unison, NCI, the Library, and the Office of Research Integrity quickly agreed to remove the flags. But when they sought to cleanse the records, they found that the data bases ricochet to unknown destinations all over the world. A comprehensive cleanup thus appears to be impossible.

Fisher claims that Broder and company made him the scapegoat in a Machiavellian scheme to appease Dingell, who, prior to the Republican takeover of the House, chaired an investigating subcommittee and was regularly on the prowl for evidence of ethical missteps in government-funded research. The depositions, taken by Fisher's attorneys, recount hellish days in the executive suites of NCI following publication of the *Chicago Tribune* account of Poisson's misdeeds, under a headline "Fraud in Breast Cancer Study," with a subhead reading: "Doctor lied on data for a decade." The article, by John Crewdson, immediately drew Dingell's attention, and then, according to a deposition by Bruce Chabner, "the poop hit the fan."

Asked to describe his discussions of the newspaper article

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. . . For Six Months, Broder 'Was Mad at Everybody'

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with Broder, Chabner said Broder was "angry at everybody. He was angry at his staff for not forcing Fisher to publish his reanalysis quicker. He was angry at Fisher for not getting his reanalysis out. He was angry at Dingell and Crewdson and [Dingell staff investigators] Suzanne Hadley and Peter Stockton and all these guys that were making his life miserable.... I think for the next six months he was mad at everybody."

Shortly after the article's publication, Dingell was making plans for a hearing that was held on April 13, and Marvin Kalt, Director of NCI's Extramural Activities Division, sent a memo to ORI stating: "The NCI needs the Office of Research Integrity to initiate a formal misconduct investigation of Dr. Fisher and other colleagues as warranted."

"Is it usual for NCI to tell ORI that it needs a scientific misconduct investigation to be initiated against a particular person?" Fisher's lawyers asked Dorothy Macfarlane, Deputy Director of ORI's Division of Research Investigations.

"I don't believe I've ever seen it stated that way, otherwise," she replied.

NCI's treatment of Fisher was deplored in a deposition in August by Richard S. Ungerleider, Chief of Clinical Investigations in NCI's Division of Cancer Treatment.

Asked whether he thought Dr. Fisher was being "scapegoated," Ungerleider replied: "I would say that was a common sentiment at NCI." Regarding Dingell's entry into the case, Ungerleider said: "Well, I believe it was viewed as a threat to NCI. Congress provides us with funding, and if we were to fall from their good graces, perhaps our funding would suffer." He couldn't recall "discussions of the need to remain within Congress's good graces." But, he noted, "when you come from a culture where a Congressman calls—if a staffer calls about a constituent back home, we have to do everything in triplicate with all sorts of layers. We're very responsive to Congress, and we're taught that we have to be."

Peter Greenwald, Director of NCI's Division of Cancer Prevention and Control, related a personal tale of firing threats by Broder. Asked whether Broder had ever invited his resignation, Greenwald answered, "Yes," and recalled a discussion about a budget matter. "And the statement [by Broder] was something like this, if you don't like the way NCI is being run, you can resign today, or you can go to the President [who appoints the NCI Director] and ask him to ask for my resignation."

Recalling that Fisher pleaded illness and did not appear at the first of two Dingell hearings last spring, Fisher's attorney asked Greenwald, "Did Broder express an opinion that because of Dr. Fisher's absence, [he] had to take more of the heat from Congressman Dingell and the other committee members?"

"Yes," replied Greenwald.

Asked whether he had observed Broder threatening to fire subordinates, Michael Friedman said that Broder "suggested that I should set up a macro within my computer with my resignation so I could just punch a button."

The question of who was responsible for the decision to place the misconduct and reanalysis flags on Fisher's papers emerges as a matter of contention between NCI and the Office of Research Integrity. ORI Director Lyle Bivens was asked, "What was the gist of the, if you will, dispute between your office and Dr. Sondik's [NCI Acting Deputy Director]?"

Bivens replied, "First, the issue of who initiated the request for and developed the list of flags on the NLM [National Library of Medicine] publications is raised again, where we point out that it was at NCI's request that ORI asked the NLM to put the reanalysis notice on the publications."

Bivens' disavowal of responsibility for the flags on Fisher's papers was related to a memo he received from NCI's Sondik last March. Stating that papers containing falsified data should be "tagged or flagged in an appropriate manner," Sondik's memo added, "I, of course, deplore a flag on a paper that includes no such data, and I deplore as well any innuendo created by a phrase such as 'scientific misconduct' that may make it seem that the authors of the paper had committed scientific misconduct when in fact they had not."

Sondik suggested that ORI create a panel to study the problem of flagging tainted papers. "Regarding the Poisson affair," he added, "I suggest that you convene such a panel as soon as possible."

Donald Lindberg, Director of the National Library of Medicine, said in his deposition that corrections and retractions on papers in electronic data bases customarily are derived from the journal of original publication. He said that Broder contacted him "Just to be sure that the appropriate policies were in place." Staff was designated, he said, to discuss the matter. Lindberg said he knew of no instance other than the Fisher case in which the term "scientific misconduct" was added to a paper in MEDLINE. Asked about removal of the flags, Lindberg said that "it's hard to keep up with any of it," noting that the data bases are licensed to universities, and "they make derivative products."

The testimony of ORI's Bivens and several other witnesses matched neatly on the subject of the inquisitional manner of a Dingell staff member, Peter Stockton. "Do you recall him at the January meeting being abusive or intimidating and using profane language?" Bivens was asked.

Reply: "He was always that way."

If Fisher succeeds in his suit under the Privacy Act, the potential for financial penalties against the government may be astronomical. The Privacy Act, passed in 1974, was a response to concerns about illicit disclosure of personal data in computer systems. The Act specifies a penalty of $1000 per violation of privacy. How many occurred in the Fisher case? MEDLINE, the biggest of them all, records about six million searches a year across all topics covered. Given some 40 other data systems that originate in the National Library of Medicine and then spread worldwide, there's no way of knowing how many eyes rested on the flagged Fisher papers.—DSG

. . . Mega-Projects Were Killing Science at NASA

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focused on the beauty of the engineering. Engineering is a large part of it, but now we've also fenced off science money, and we're designing the Space Station to do science. And, in fact, the National Academy of Sciences has now come out with a report [*Microgravity Research Opportunities for the 1990s*]. It took them four years to write, which, by the way, is a fundamental problem. It should have taken a year or two. It says that microgravity research is a valid field of research. The primary purpose of the Space Station is to figure out how people can live and work safely and efficiently in space, and in the process of building that facility, to continue human exploration. And you can get good science from that. But I'm not going to look you in the eye and say the sole purpose of the Space Station is science. I don't want to get to where we were before, where we used to say that the Space Station will cure cancer and heart disease. We're not going to say that anymore. However, the fact that we're doing research in zero gravity opens up tremendous possibilities in a broad range of sciences.

SGR. *It's said that the Space Station costs are destroying space science.*

Goldin. I will tell you that science at NASA has been destroying itself. We were building mega-spacecraft. The spacecraft were getting so big that they were becoming a political entity. A case in point—the Mars Observer. Here was a spacecraft that cost in excess of a billion dollars. And it was supposed to be an experiment in low-cost spacecraft. One billion dollars for a spacecraft to go orbit Mars. Not two spacecraft, in case one fails. It was a sole-source contract to take an earth-orbiting spacecraft and magically take a wand and make it into an interplanetary spacecraft. And the thing blew up. At least we think it blew up. People worked on that for one whole decade. The instruments—a thermal vacuum test became a political event. The lion's share of the money did not go to science. It goes in the science budget, but if we go build this enormous spacecraft, and then have an epsilon or a few percent actually going into science, have we accomplished anything?

We said, never again. So, we're going to go to Mars on four different launch vehicles, with four different spacecraft. Two are actually going to land with robots for the basic sciences—geology and a variety of other fields. Two of them are going to orbit. The output is going to be enormous. No spacecraft is going to take longer than three years, and they're all going to be less than the cost of that one Mars Observer. And we're going to go to Mars every launch opportunity and we're going to go with two spacecraft. We're going to do that over a ten-year period, and with the spacecraft that come after those, we're probably going to get eight spacecraft for the price of the Mars Observer. And we're getting universities and high schools, a broader range of scientists involved. The quality of the science is going up. And the absolute budget of science is coming down at a much lower rate than the human spaceflight budget.

In this time of the budget being cut, we started ten spacecraft to Mars. We set up a program to go to an asteroid. We set up the whole Discovery series, so every other year we're going to launch a spacecraft, for ten years. We set up the New Millennium Program. That's technology oriented, but we're going to have a spacecraft that's going to rendezvous with three or four comets and asteroids. We're going to send an eight-kilogram package onto the surface of Mars. And in the year 2000, we're going to build a new interferometer in space. We have a whole series of new earth probes. The old think was, we measure the vitality of the program by the dollars going in—because it's easy, it's very quantitative. And what we need to do is to measure quality by the science coming out, by the technology coming out. We feel strongly that we have to continue squeezing the bureaucracy, and look at a new way of doing business, so that the lion's share really goes into supporting science and technology, and doesn't go into supporting an operational system.

SGR. *How much of NASA as a government agency will remain after this squeezing process is completed?*

Goldin. We don't know exactly where it's going to stop. But we're not going to have NASA doing things where superior facilities or capabilities exist outside. There are things that we do that no one else can do. For example, we have computational fluid-dynamics capabilities that are always probably a step ahead of the rest of the world. We're going to keep pressing the limits until we find that we get to a core set of values where we're world class in what we're doing, and if we can't be world class, we're not going to do it.

SGR. *How do you know when you're the best?*

Goldin. Our scientists are going to have to do peer-reviewed science. That is going to strengthen us, because there's not a level playing field in NASA. The other thing we're going to do is total-cost accounting. It always was free to have NASA scientists do things, because we didn't count their salaries or the overhead. A large portion of the NASA budget was not going into research and technology. It was going into operating systems over decades. So, we put sunset clauses in. On the Space Station, we talked to the President, and he supported us. After ten years of operations—the original Space Station was 30 years—there will be a national peer review to establish the Space Station and its objectives. If not, it gets shut down.

SGR. *Who does the review?*

Goldin. We haven't worked out the process, but it will probably be the National Academy of Sciences-National Academy of Engineering. But it will not be NASA. You see, with NASA, there's always a desire to maintain the jobs.

SGR. *What was the size of the NASA staff when you came on board?*

Goldin. Twenty-five thousand. And now we're close to

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. . . Cost Review Was Lacking for Inhouse Projects

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20,000 and we hope to get to about 17,000, and we may go a little lower. We're doing our job with less people and we're getting more accomplished. It's important that people not write memos at work but contribute to the scientific knowledge.

SGR. *You said that NASA scientists weren't playing on a level field as far as peer-review was concerned. But we've always been told that NASA's science is peer-reviewed by somebody.*

Goldin. It is, but the problem is, if you don't do total-cost accounting—. If you're in a university, you have to put your salary in, you have to put the university overhead in. A NASA scientist doesn't put in his costs. In the earth-sciences area, I think NASA's doing the lion's share of the science. Now, if we did a peer-review system where it was total-cost accounting, would NASA have that large a share of the research? Yes, we do peer review. The scientists peer review. But in the new world order, in the new order in America, cost has to be factored in.

SGR. *You mean peer review of cost.*

Goldin. If I'm going to select researcher A over researcher B, there has to be some consideration about cost. And by the way, all NASA science was not peer reviewed. No. In the life-sciences area, a lot of it wasn't peer reviewed. And we called in the NIH to help us. And we asked them to establish rules for peer reviewing NASA life sciences.

SGR. *How far can cost-cutting still go?*

Goldin. We'll see. But when I took over this job, I was told it was going to cost a half trillion to go to Mars, and I said that's ridiculous. And I'm proud that I helped get the solar-exploration initiative killed, because we were on a path to a big public-works job. I do believe that we ought to go to Mars if we could do it for $25 billion over eight years. That's $2 billion a year. A manned mission. And that's why I come back to money. If you do it at any price, human exploration shouldn't be done. But so long as it's a reasonable fraction, about a third or less of the NASA budget, I'm for it. If it goes beyond that, it shouldn't be done.

SGR. *How important is our relationship with Russia in space?*

Goldin. There is one common denominator to the United States and Russia, and that is the love of space. The US Ambassador to Russia and the Russian Ambassador to the US both told me that the space program is the most successful exchange in terms of developing understanding between us. The Russians didn't pick astrophysics or planetary. They wanted to have a human spaceflight program.

SGR. *But science has a big future at NASA?*

Goldin. I have fenced off $2 billion for the Space Station that's dedicated to science. And now we are getting NASA out of the business and moving to set up institutes. The first area of maximum progress will be the biomedical institute in Houston. We did not have the best science researchers in the world, because we kept all the stuff inhouse, and we had service-support contracts instead of peer review in science. Now that we're opening it up, microgravity is going to be put into institutes in Houston and Cleveland. Free-standing institutes. Absolutely. University managed. And I'm talking about a lot of people. So, we're taking big chunks of NASA.

But what we want to do is to establish relationships between industry, academia, and government. Industry is not going to fund research with payoffs beyond three to five years. We no longer have the leverage. When NASA built Apollo, of course we were successful. We were 5.5 percent of the federal budget. When you throw money at something, you've got to succeed, but it was brute force. We're now nine-tenths of a percent, going to eight-tenths, perhaps even seven-tenths, in the federal budget. At the institutes, we will fund the long-term research, but we'd like to get the partnerships and the dual-use technology so they can build commercial products.

SGR. *What's the timetable for the move to institutes?*

Goldin. We're briefing it up in the White House and on the Hill. We now have decided where the institutes are going to be: A biomedical institute in Houston; an astrobiology institute in Sunnyvale, California; a microgravity institute in Cleveland—it will be combustion and materials; a microgravity institute in Huntsville [Alabama] will be biotech and fluids. Eleven in all.

SGR. *Why aren't these locations being opened to competition?*

Goldin. Because there's a multi-billion dollar investment in existing NASA facilities. We're going to say, the facilities are available. We're not saying that the institution has to physically be located in that place. Theoretically, MIT might decide they want to manage the astrobiology institute. We want to involve the very best in the country, and when we get done, I think we're going to get much better science. Now we have a schedule. Instead of doing all 11 institutes at once, and having a mess, the biomedical institute in Houston is going to be the first one, I hope up and running in about a year to 18 months.

SGR. *The long-term Republican budget plan calls for even further reductions for NASA.*

Goldin. Up until now, I didn't fight the cuts. But now we need about a year or two of stability in funding so we can figure out where we are. Eliminating 5000 civil service jobs—that's an enormous number. We probably have eliminated 25,000 contractor jobs. The thing that the Congress needs to understand is this is not like an organization that does paper work. If they make an error, it's recoverable. We could lose a whole field of science if we don't watch out. We could make mistakes that could be irreversible. My position is, we, more than most other agencies, have stepped up to the plate. But in Washington, the way it works is what have you done for me lately? NASA has never in the last three years

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Gingrich Hears Plea for Better Treatment of Science

Congressman Amo Houghton (R-NY), one of the few enthusiasts of science on Capitol Hill, gathered a sampling from the science establishment last week for a missionary breakfast meeting with Speaker Newt Gingrich and his science sidekick, Rep. Bob Walker (R-Pa.), Chairman of the Science Committee.

Gingrich, according to a participant, outdid the chorus in praise of science, ascending to lofty rhetorical levels about the importance of research for the nation's future and his commitment to generous government support of science. But the meeting, held October 25 in the Capitol, "never got down to something practical," according to SGR's source, who observed that "Newt is interested in the stratospheric."

That matches up with previous pronouncements on research by Gingrich and company, who insist that their spending designs protect basic research while eliminating federal industrial-technology programs, which they deem wastefully out of touch with the marketplace. However, the reality is that basic research spending, though only slightly trimmed this year, is slated for major reductions in the Republicans' long-term budget plan.

Meeting with the Congressmen were: Bruce Alberts, President of the National Academy of Sciences; Charles Vest, President of MIT; Nobelist Joshua Lederberg, former President of Rockefeller University; Chase Peterson, University of Utah School of Medicine; Guy Stever, former NSF Director and alumnus of numerous high-level federal positions and advisory tasks, and Professor Jim Hunt of the University of Tennessee Health Sciences Center.

Houghton, first elected to Congress in 1986 after long service as Executive Officer of the Corning Glass Works, says that in times good and bad, Corning regularly increased its research spending—and the US should do the same, he argues. But as a political moderate, Houghton is part of a small minority in the Republican majority, and is little heeded on research matters.

Among his battered enthusiasms was the late Office of Technology Assessment, whose Congressional Board he would have chaired this year if the Republican majorities had not terminated OTA. Convinced that Congress needs the analytical input once provided by OTA, Houghton says he and NAS President Alberts are discussing the services that the Academy might provide. Houghton describes the meeting with Gingrich as "a beginning show," and says another meeting will be held next month.

Which NIST Did You Mean?

The Commerce Department dismantling bill passed by the House would strip almost all external industrial-aid programs from the Department's National Institute of Standards and Technology (NIST), and re-rechristen NIST with the venerable name it gave up in 1988, the National Bureau of Standards. But, amid what is sure to generate gross confusion if this happens, the NIST acronym would survive.

The current NIST, an expansion of the old Bureau, would be folded into a new National Institute of Science and Technology—NIST, in acronymese—along with another planned survivor from Commerce, the National Oceanic and Atmospheric Administration. The new NIST could be the core of a Department of Science, says House Science Chairman Robert Walker, but now he's taking just one step at a time, and maybe not even that. The White House says it will veto the dismantling bill. The Republicans lack the two-thirds majorities need for an override.

Goldin Q&A

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fought the cuts.

If you go back to the Cold War, cost was never really an object. Making it big and complex and getting it done was the point. And now we're telling everybody cost is important; you have to do science per unit dollar. My plea right now is, tell us what the budget is going to be, and then hold to it for two years.

SGR. *But that's not likely.*

Goldin. Then they're going to have to bear a responsibility. You can't have rhetoric about revolution in government and not make some commitments and stick to them. There are problems that are growing. Support for the major engineering schools like MIT is getting clobbered. We need engineers as well as we need scientists. We've all been talking so much about basic research, but we also need to pay attention to engineering. Engineering is crucial. And I think we're supporting the science institutions, not as much as we should, but there needs to be some balance for the reason that private industry is not going to do it.

SGR. *So, you're making progress in reinventing NASA.*

Goldin. There's a revolution going on, but you can't see it here. Walk into the lobby of the Jet Propulsion lab and you see the Galileo spacecraft, which is 20-30 feet across, and cost a billion and a half. Right next to it you see a spacecraft the size of my desk—the Pluto Express. The Pluto Express will return more science than Galileo, with broader spectral coverage, at an order of magnitude lower cost. That's the revolution. When I came to NASA, JPL told me it would cost $2 billion, and now they're saying it will cost on the order of $300 million—for two spacecraft. If a tape recorder fails on Galileo, you're in trouble. But if it takes ten years to get there, you ought to send two. So, we'll send two spacecraft for on the order of $300 million. Three years ago, JPL had nothing to do beyond Cassini, because they needed another multi-billion job to keep the factory going. Now they're working on ten missions to Mars, they're building a rover with laser beams and sensors, an electro-optic eye that has a brain. That rover will be able to move itself across Mars. That's what they're doing there instead of these huge programs that take a decade.

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From the RAND National Defense Research Institute:

Priority-Setting and Strategic Sourcing in the Naval Research, Development, and Technology Infrastructure (MR-588-Navy; 110 pp., $15, plus $3 for shipping), inspired by the downsizing rush, recommendations for identifying crucial areas of research for the Navy according to mission needs and technological promise. The report acknowledges a role for inhouse research, but chides naval R&D managers for lagging behind industry and other government agencies in buying "off the shelf" and contracting research from the private sector, noting, for example, that the Pentagon's Advanced Research Projects Agency "has funded a great deal of high-payoff R&D with virtually no inhouse R&D structure of its own." Basic research, on which the Navy once prided itself, is accorded a low priority because of distant payoff times, but the report expresses a "strong conviction" that "basic research is of highest national importance and will have absolutely certain longer-term payoff **some**time, **some**where, **some**how [original bold face]."

Kenneth Saunders, of RAND's Defense and Technology Planning Department, tops a list of 10 authors, six from RAND, the others from outside.

Order from [prepayment required]: RAND, Publications, 1700 Main Street, PO Box 2138, Santa Monica, Calif. 90407-2138; tel. 310/451-7002; fax 310/451-6915; Internet: <order@rand.org>.

From the General Accounting Office (GAO):

Military Physicians: DOD's Medical School and Scholarship Program (GAO/HEHS-95-244; 93 pp., no charge), a cost comparison of the main physician-training programs of the military services: scholarships and stipends at civilian schools, versus the Pentagon's own medical school, the Uniformed Services University of the Health Sciences (USUHS), in Bethesda, Md., which Congress keeps alive over the protests of the Defense Department. The total educational cost per USUHS graduate is $566,506, compared to $125,946 for scholarship students who go into active service, the GAO reports. But since the USUHS grads must serve a minimum of seven years, and often remain longer, the costs-per-year-per-physician of expected military service are much closer—$176,236 for USUHS and $149,969 for the scholarship program. With on-rushing managed care bound to produce a glut of doctors, the need for the school, at any price, is doubtful. Nonetheless, it survives.

The GAO said it found no evidence to support USUHS's claim that its graduates are better prepared for military service than physicians from civilian schools. Under a Senate edict, the military school is safe for this fiscal year, but the word around medical-education circles is that the faculty is dribbling away to other job opportunities because of uncertainty about USUHS's future.

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

From the defunct Office of Technology Assessment (OTA), a trickle of reports. (A small staff will remain until January 31 at the old OTA offices: 600 Pennsylvania Ave. SE, Washington, DC 20510; tel. 202/224-3695):

Innovation and Commercialization of Emerging Technologies (GPO Stock No. 052-003-01455-6; 96 pp., $7), says the swift pace of technological change, in combination with global competition, necessitates more government-industry collaboration in innovation and commercialization. The tides on Capitol Hill are running in the opposite direction, with the major collaborative programs in the Defense and Commerce departments slated for elimination. Robert C. Weissler was OTA Project Director for the report.

The Technological Reshaping of Metropolitan America (GPO Stock No. 052-003-01-448-3; 244 pp., $15), reports that information technologies permit the dispersal of work and living areas, and that as a result, cities face major transformations. Needed, says OTA, are new federal economic-development policies. Robert D. Atkinson was Project Director.

Order from: New Orders, Superintendent of Documents, PO Box 371954, Pittsburgh, Pa. 15250-7954; tel. 202/512-1800; fax 202/512-2250. Add 25 percent for foreign orders.

From the Office of Naval Research (ONR):

Two publications in which the US military services report on R&D in Asia and Europe have transited from paper to the Internet. Founded in the early post-war period, both utilize roving military officers and civilian specialists to gather information from labs and administrative offices.

The Asian report is produced from ONR's Tokyo headquarters. Address: http://www.itd.nrl.navy.mil/ONRA/

The European report, to which the Army and Air Force contribute, is produced by ONR's London office. Address: http://www.ehis.navy.mil/homepage.htm

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In Print

Official reports and other publications of special interest to the research community

(Copies of publications listed here are available from the indicated sources—not from SGR)

From the Congressional Budget Office (CBO):

Medicare and Graduate Medical Education (49 pp., no charge), examines the role of Medicare finance for graduate medical education, still nervously awaiting word on how direct and indirect subsidies for some 1200 teaching hospitals nationwide will be affected by the coming cuts in previously projected Medicare spending. The CBO reports that federal assistance for training residents—mostly from Medicare—exceeded $6 billion in the just-ended fiscal year, and, under the old budget plan, is scheduled to reach $7.5 billion in 2000. Befitting a shop dominated by economists, the CBO report observes that the Medicare programs "pay more to a teaching hospital the more residents it has," and that Medicare payments far exceed the going stipend of $30,000 to $38,000 per resident. For one-fourth of the hospitals, the CBO found, each additional resident brings in over $102,000 in Medicare aid. Among the options offered by the CBO: trim subsidies to match costs more closely and put more emphasis on primary-care residencies. The report was prepared by James Baumgardner, of CBO's Health and Human Resources Division, under the direction of Joseph Antos and Linda Bilheimer.

Order from: Congressional Budget Office, Publications, Room R-413, Ford House Office Building, 2d and D Sts. SW, Washington, DC 20515; tel. 202/226-2809.

From the Center for Immigration Studies:

Foreign-Born Scientists, Engineers and Mathematicians in the United States (83 pp., $12), says the number of foreigners has increased sharply in recent years and asserts, without offering evidence, that the foreign influx impedes recruitment of native-born minorities into scientific and technical professions. Whatever the case, Congress, pressed by industrial firms to keep the doors open to foreign talent, appears reluctant to impose new restrictions on the immigration of these skilled workers. The report was written by Leon Bouvier, Adjunct Professor of Demography at the Tulane University School of Public Health, and John Martin, Research Director at the Center, a Washington-based nonprofit organization founded in 1985. The Alfred P. Sloan Foundation provided support for the study.

Order from: Center for Immigration Studies, 1815 H St. NW, Suite 1010, Washington, DC 20006-3604; tel. 202/466-8185; fax 202/466-8076.

From the Southern Technology Council:

Benchmarking Best Practices for University-Industry Technology Transfer: Working with Start-Up Companies (35 pp., $10), reports on methods for keeping the commercialization of homegrown technologies in the Council's 14 member states, rather than see them exported to firms elsewhere, as described in a Council study (also available), published in March: ***Benchmarking University-Industry Technology Transfer in the South: 1993-1994*** (50 pp., $10). The successful universities, the report notes, "tend not to be inhibited by issues of faculty conflict-of-interest." The authors of the report are Louis Tornatzky, Director of the Council; Paul G. Waugaman, a consultant, and Lucinda Casson, Program Manager at the Council.

Order from: Southern Technology Council, PO Box 12293, Research Triangle Park, North Carolina 27709; tel. 919/941-5145; fax 919/941-5594.

From the White House National Science and Technology Council:

Infectious Disease—A Global Health Threat (55 pp., no charge), a strongly worded warning of serious microbial threats worldwide and a call for US leadership and international cooperation in research, surveillance, training, and development of countermeasures. The report, echoing similar alarms in the recent past, is from the Council's Working Group on Emerging and Re-emerging Infectious Diseases, chaired by David Satcher, Director of the Centers for Disease Control and Prevention. Included are an awesome roster of lurking and raging diseases, including some, such as TB, that were once considered under control, plus a brief discussion of the CDC's experience with the Ebola virus, and recommendations for strengthening federal programs.

The last page of the report contains something not previously encountered by SGR in White House documents—an inoculation against politically dangerous free-spending accusations, in the form of a paragraph headed "Final OMB/OSTP Caveat" [i.e., Office of Management and Budget and Office of Science and Technology Policy]. The paragraph states, in part, that the report is for "internal planning purposes," adding that money is tight because of the Administration's commitment to deficit reduction, and "The research programs presented in this report will have to compete for resources against many other high priority Federal programs." How's that for building enthusiasm?

Order from: CDC, 1600 Clifton Rd., Mail Stop C-12, attn. Janice Battle, Atlanta, Georgia 33033; tel. 404/639-2603; fax 404/639-3039.

From the National Science Foundation, Division of Science Resources Studies:

Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1985-93 (107 pp., no charge), tracks the award of bachelor, master, and doctoral degrees for the "five racial/ethnic categories [that] are required in Federal Government surveys of institutions": Black non-Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, Hispanic, and White, non-Hispanic.

Order from: NSF, Division of Science Resources Studies, Publications Unit, Suite 965, Arlington, Va. 22230-9966; tel. 703/306-1130; fax 703/644-4278; for instructions on electronic access: tel. 703/306-0214, or Internet: <webmaster@nsf.gov>.

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